

## Derivative Worksheet

1.  $f(x) = \pi^2 + x^2 + \sin(x) + \sqrt{x}$

2.  $f(x) = x^2 + \cos(x) + \frac{1}{x^3} - \sin(\pi^2)$

3.  $f(x) = x^2(x^4 - 2x)$

4.  $f(x) = x^2 \cos(x)$

5.  $f(x) = x^3 \sin(x)$

6.  $f(x) = \cot(x)$

7.  $f(x) = \frac{\sin(x)}{x^4 - 3}$

8.  $f(x) = \sin(x^3 - 1)$

9.  $f(x) = \sin(\cos(\sqrt{x^3 - 1}))$

10.  $f(x) = x(x^4 - 2x)^2$

11.  $f(x) = x^2 \sin(x^3 - 1)$

12.  $f(x) = \tan(x^3)$

13.  $f(x) = \tan(x^3)\sqrt{3-4x}$

14.  $f(x) = \pi^2 \sin\left(\frac{\pi}{6}\right)$

15.  $f(x) = \frac{x^4 - 2x + 3}{x^2}$

16.  $f(x) = \frac{x^2}{x^4 - 2x + 3}$

17.  $f(x) + \frac{\sin(x)}{(x^4 - 3)^4}$

18.  $f(x) = \frac{x^2 \cos(x)}{(1 - 2x)^2}$

19.  $f(x) = \frac{\sin(x)}{x^2 - 3\sqrt{x}}$

20.  $f(x) = \frac{x \sin(x)}{1 - 2x}$

21.  $f(x) = 3x^5 - 2x^3 + 5x - 1$ , find  $f''(x)$

22.  $f(x) = 3x^5 - 2x^3 + 5x - 1$ , find  $f^{(7)}(x)$

23.  $f(x) = \sin(x)$ , find  $f^{(24)}(x)$

24.  $f(x) = x \sin(x)$ , find  $f'''(x)$